

## UHGS Sonar Mapping Ship Operation

If computer is not on:

- Plug in computer to surge protector
- Plug in USB hub (labeled) to surge protector
- Plug in boat power source (labeled) to surge protector
- Turn computer on

If cables are unplugged from computer:

- USB hub should be plugged into computer, left hand side port, furthest back (labeled).
- Cables connected to USB hub should not be changed, but they are labeled if for some reason they come undone

**USERNAME: BOAT**

**password: boat**

1. Verify internet is connected (click left hand wifi icon, connect to UHM network, open Chrome, log in with UH credentials).
2. Launch Pololu Jrk Configuration (on Desktop, looks like a white palm tree on a blue background). These are the controls for the two motors (x and y direction)
  - a. In the "Connected to" dropdown menu, select one of the numbers. Drag "manually set" slider anywhere, and click "Set Target". One of the motors should move, this tests the motor is operational.
  - b. Repeat (a) for the other number from the drop down menu. (Checks the other motor).
3. Launch PuTTY Configuration (on Desktop, icon is two computers).
  - a. Click Open. A black terminal window should open with numbers that change if you move your hand under the sonar sensor. This verifies the sensor is connected and operational.
  - b. **COMPLETELY CLOSE PuTTY PROGRAM AFTER TEST.** If you don't, when Matlab tries to call the sensor, it will return a busy signal and not work.
4. Find the Matlab Boat folder on the desktop
  - a. Open `BOAT_command.m`
  - b. If Matlab doesn't open, it means the internet is not connected (we have an online license.)
  - c. Once the script window opens, hit RUN.
  - d. After a few seconds a ship command terminal will open, the computer is a touch screen so everything from here on out should be done with touchscreen.
  - e. Click "Set Sail". This will run a preprogrammed ship track. Check that the sensor is mapping the targets, if it is not, or the targets are mapping as really tall, you need to troubleshoot.
  - f. Kids can click "Record Survey" and select their own points (limit to ~5 points, boat is slow). To run their custom survey, click "Play recorded".
  - g. Click "Abandon ship" to stop survey if needed.
  - h. When you are done, close the terminal and in Matlab command window, type `fclose all`

## COMMON TROUBLESHOOTING

- Sonar is not responding in PuTTY terminal.
  - Log out and back in, try again.
- Matlab script is running but the map is not plotting.  
Matlab script is running and mapping but the targets are plotting as being way way too tall.  
Matlab is not responding at all.  
Matlab boat terminal is wonky.
  - Close out all programs, log out and back in, check sensor in PuTTY terminal, make sure PuTTY terminal is closed after the test, and try again.

